

Attorney Docket No. 0756-2046

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:) Group Art Unit: 2812
Shunpei YAMAZAKI) Examiner: R. Booth
Serial No. 09/412,512) CERTIFICATE OF MAILING
Filed: October 5, 1999) I hereby certify that this correspondence is being
For: LIQUID CRYSTAL DISPLAY DEVICE,) deposited with the United States Postal Service
ACTIVE MATRIX TYPE LIQUID) with sufficient postage as First Class Mail in an
CRYSTAL DISPLAY DEVICE, AND) envelope addressed to: Commissioner for Patents,
METHOD OF DRIVING THE SAME) P.O. Box 1450, Alexandria, VA 22313-1450, on
3.23.04
R. Booth

RESPONSE

Honorable Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Official Action mailed December 23, 2003, has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Official Action and therefore is believed to be timely without extension of time.

The Applicant notes with appreciation the consideration of the Information Disclosure Statements filed on November 23, 1999, April 2, 2001, July 15, 2002, and September 2, 2003.

The Applicant notes the *partial* consideration of the Information Disclosure Statement (IDS) filed on October 5, 1999. Specifically, it appears that the Examiner inadvertently overlooked the citation of the C.S. McCormick et al. article. As a courtesy to the Examiner, the Applicant has attached a copy of Form PTO-1449 originally filed October 5, 1999, and partially considered by the Examiner on April 13, 2001, and attached with the Official Action dated April 17, 2001 (Paper No. 10). The Applicant respectfully requests that the Examiner provide an initialed copy of the Form PTO-1449 submitted October 5, 1999, evidencing consideration of the IDS. If the McCormick

article cannot be located by the Examiner in the present application file or Image File Wrapper, then the Applicant requests notification in a subsequent communication.

Claims 14-16, 18, 19, 31-36, 39, 40, 43, 44, 48-50 and 52-57 are now pending in the present application, of which claims 14-16, 18 and 19 are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

The Official Action rejects claims 14-16, 18, 19, 31-36, 39, 40, 43, 44, 48-50 and 52-57 as obvious based on the combination of JP 09-312260 to Hamatani et al., U.S. Patent No. 5,236,850 to Zhang, U.S. Patent No. 5,476,810 to Curran, and U.S. Patent No. 6,188,452 to Kim et al. The Official Action also relies on U.S. Patent No. 6,077,731 to Yamazaki et al. and asserts that it is equivalent to Hamatani. The Applicant respectfully submits that a *prima facie* case of obviousness cannot be maintained against the independent claims of the present invention, as amended.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5

USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Also, MPEP § 2142 states that the examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. It is respectfully submitted that the Official Action has failed to carry this burden.

There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Hamatani (and/or Yamazaki '731), Zhang, Curran and Kim or to combine reference teachings to achieve the claimed invention.

The Official Action concedes that Hamatani does not teach "forming the semiconductor film by sputtering in an inert gas and the particular LCD structure claimed, forming the semiconductor film over a plastic substrate with an intermediate base film, and forming a gate insulating film comprising a benzocyclobutene (BCB) film on the semiconductor film" (page 2, Paper No. 1203). The Official Action relies on Zhang to allegedly teach "forming a semiconductor film through sputtering in an inert atmosphere (page 3, Id.), on official notice to allegedly teach "the LCD structure of claim 19" (Id.), on Curran to allegedly teach "the use of plastic substrates 20 as well as intermediate films" (Id.), and on Kim to allegedly teach "forming a gate insulating film of BCB" (Id.). The Official Action asserts that "[in] view of [Curran], it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Hamatani et al. modified by Zhang so as to use a plastic substrate because such a substrate allows for a low cost device" (Id.). The Applicant respectfully disagrees and, for reasons provided in detail below, traverses the above assertions in the Official Action.

The Official Action does not offer a teaching of sufficient motivation from Hamatani, Zhang or Curran to show how or why it would have been obvious to use the plastic substrate 20 or intermediate films of Curran in the proposed combined device of Hamatani and Zhang. Just because it may be advantageous for the substrate of the

Curran device to be formed of a plastics material (col. 3, line 55) does not by itself suggest that Curran could or should be applied to the combined device of Hamatani and Zhang without a specific teaching to that effect. The lack of motivation to combine Hamatani and Zhang with Curran is particularly glaring in this case when Hamatani itself teaches a preference for a glass substrate (see col. 2, lines 32-39, of Yamazaki '731). Therefore, the Applicant respectfully submits that there is a lack of motivation to combine Hamatani, Zhang and Curran.

Similarly, with respect to Kim, although the Official Action asserts that the reason for combining Kim with Hamatani, Zhang and Curran is to provide "an organic gate insulating layer of stable TFT characteristics" (page 3, Paper No. 1203), the Official Action does not show how or why it would have been obvious to use the BCB gate insulating layer of Kim in the proposed combined device of Hamatani, Zhang and Curran. Again, just because an object of Kim is to provide an AMLCD with an organic insulating layer with stable TFT characteristics (col. 2, line 46) does not by itself suggest that Kim could or should be applied to the combined device of Hamatani, Zhang and Curran without a specific teaching to that effect. Hamatani appears to prefer the use of a thermal oxide film for a gate insulating film and it is not at all clear how or why one of ordinary skill in the art would look to Kim to substitute the BCB gate insulating layer of Kim for the thermal oxide gate insulating film of Hamatani. Therefore, the Applicant respectfully submits that there is a lack of motivation to combine Hamatani, Zhang, Curran and Kim.

It is noted that the inventions of the present invention as claimed are advantageous in view of safety and cost aspects. The process of forming an amorphous semiconductor film through a sputtering method can be made at low temperature with a high level of safety (see page 3, lines 4-7, of the present specification), the process of crystallizing the amorphous semiconductor film by irradiating with a laser light induces small stresses on the substrate (see page 12, line 12, of the present specification), and the process of forming a gate insulating film

comprising a benzocyclobutene can be made at low temperature. Therefore, it is possible to use an inexpensive plastic substrate. While the Official Action relies on various teachings of the cited prior art to disclose aspects of the claimed invention and asserts that these aspects could be used together, it is submitted that the Official Action does not adequately set forth why one of skill in the art would combine the references to achieve the present invention.

Even assuming motivation could be found, the Official Action has not given any indication that one with ordinary skill in the art at the time of the invention would have had a reasonable expectation of success when combining Hamatani (and/or Yamazaki '731), Zhang, Curran and Kim.

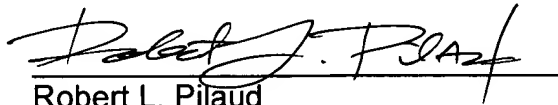
The Applicants further contend that even assuming, *arguendo*, that the combination of Hamatani (and/or Yamazaki '731), Zhang, Curran and Kim is proper, there is a lack of suggestion as to why a skilled artisan would use the proposed modifications to achieve the unobvious advantages first recognized by the Applicants. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.

In the present application, it is respectfully submitted that the prior art of record, alone or in combination, does not expressly or impliedly suggest the claimed invention and the Official Action has not presented a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

For the reasons stated above, the Official Action has not formed a proper *prima facie* case of obviousness. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Robert L. Pilaud", written over a horizontal line.

Robert L. Pilaud
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